AFCCC Strategic Weather Now
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# HOT SPOTS

**Tropical Cyclones.** Tropical cyclones begin as unorganized thunderstorm clusters that gradually circulate cyclonically. A few of these clusters intensify (warm water and instability are both essential to this) as internal elements within them revolve around one another, and some organize enough to be called tropical disturbances. Even fewer grow into tropical storms and only a small percentage of the original thunderstorm clusters ever become tropical cyclones.

In the Northern Hemisphere, the primary season for these storms is June to November with the peak period in August and September. In the Southern Hemisphere, storm season lasts from December through May with the peak period in February and March. In the Pacific, tropical cyclones can occur year-round. Figure 1 shows a sample year of storm tracks (2003).

All tropical cyclones evolve in the zone between the Tropic of Cancer and the Tropic of Capricorn, but not too close to the equator. In the western Atlantic basin an average of 11 percent (9) of all tropical disturbances become tropical cyclones. The minimum windspeed for tropical cyclones is 64 knots.

Most tropical cyclones have eye walls or rings of thunderstorms around the center of the storm. Some eye walls are very easy to see on satellite photos (Figure 2), others are not. They have strong winds and the worst conditions occur in the right front quadrant of the storm relative to the direction of movement. See Figure 3.

Tropical cyclones produce strong winds that create huge waves both out at sea and on the coasts. When a tropical cyclone approaches land or makes landfall, a wall of water, called a storm surge, hits the coast. Torrential rains can cause flooding over an area hundreds of miles across. Tropical cyclones spawn tornadoes that race across the land, sometimes by the dozen. Hurricane Beulah (1967), for example, generated as many as 115 tornadoes upon making landfall in the U.S. Contact Ms Higdon at DSN 673-9001/Comm: 828-271-4218 or email at melody.higdon@afccc.af.mil.

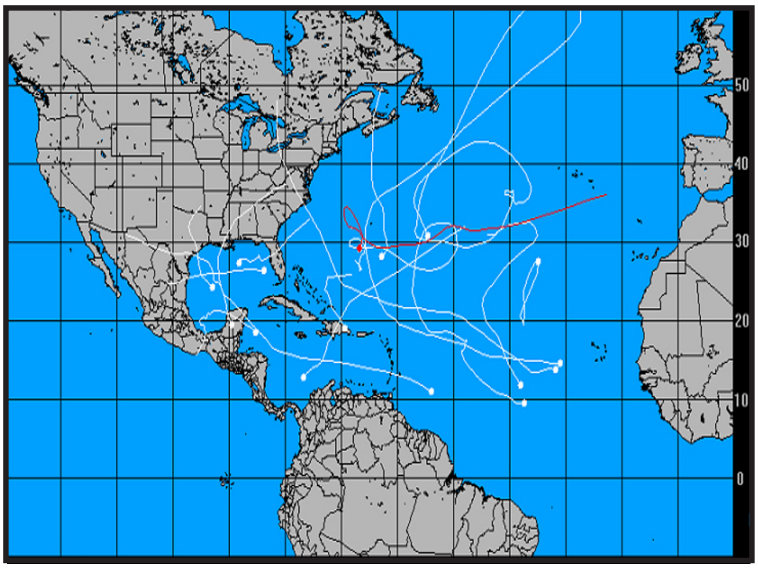


**Figure 1. Atlantic Storm Tracks 2003.** Courtesy of FNMOD, Asheville.

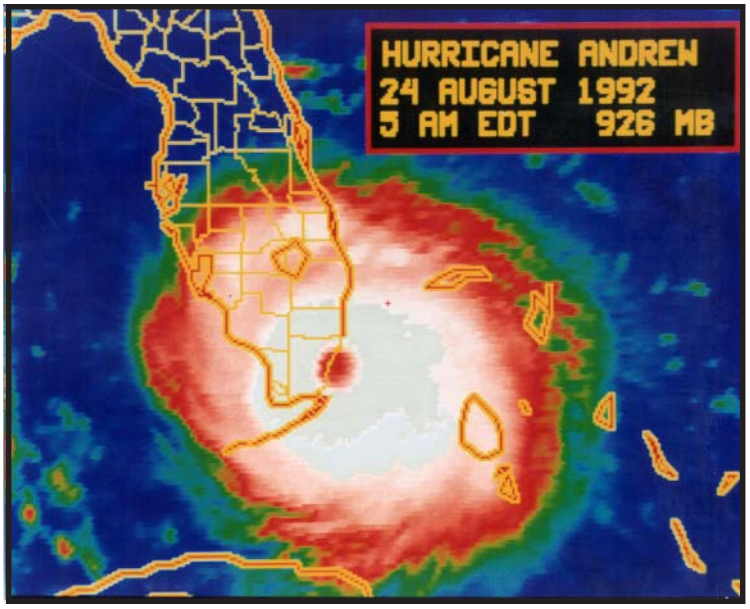


**Figure 2. Color-Enhanced Satellite Image of Hurricane Andrew.** Figure courtesy of NOAA NHC.

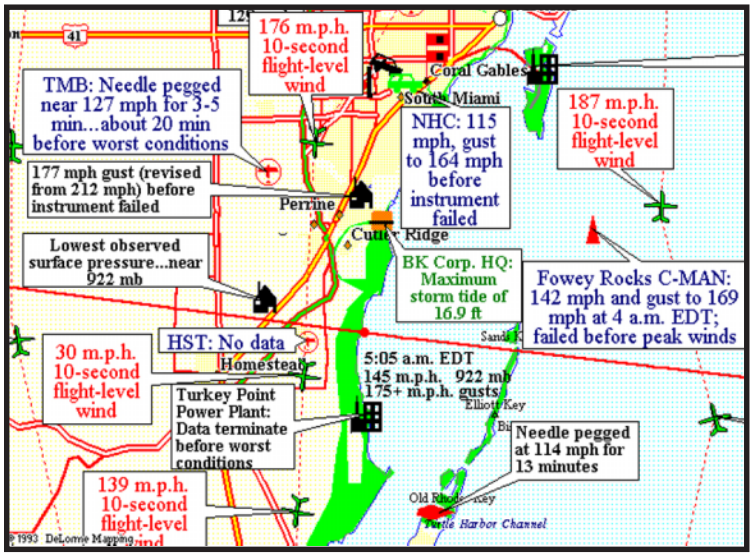


**Figure 3. Storm Reports from Hurricane Andrew.** Courtesy of NOAA/NHC.

# Branch Spotlight

## National Intelligence Support Branch

**AFCCC National Intelligence Support Branch (DON).** This branch provides highly specialized weather and climatological data in support of the national intelligence community. The intent is to assist in intelligence collection and exploitation, and provide climatological information to classified DoD planners. This section supports National Air & Space Intelligence Center, National Geospatial-Intelligence Agency, National Reconnaissance Office, various military intelligence units, and numerous classified customers. The branch also provides ad hoc products that range from weather observations for specific locations to in-depth theater climate analyses.

DON's primary product is the Point Analysis (PA) (Figure 4). A PA is a vertical (or slant path) profile of atmospheric parameters, reconstructed by the Atmospheric Slant Path Analysis Model (ASPAM), for any point on the globe. The ASPAM model uses Navy Operational Global Atmospheric Prediction System (NOGAPS) global forecast fields and all available surface and upper air observations to initialize a "first guess" solution. The model then uses statistical methods to interpolate between grid points and model times to reconstruct the final PA solution. The PA can be used as an approximated observation in data sparse/denied regions. By the end of CY04, we will implement a modernized ASPAM using Global Forecast System (GFS) data in place of NOGAPS and exploiting more sophisticated statistics. Contact Capt Amrhein at DSN 673-9011/COM: 828-673-4192 or email: edward.amhrein@afccc.af.mil.

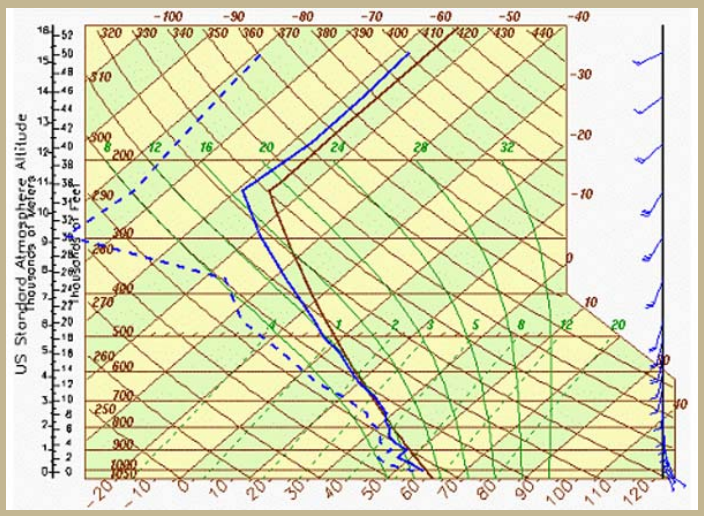


**Figure 4. Sample Point Analysis Product.**

# Climo Tidbits

Colombia, in the northwestern corner of South America, has a tropical climate dominated by the Andes Mountains. They disrupt the flow of moisture across the country and produce a wide range of microclimates from jungle lowlands to high-elevation snow caps.

# What's New

**National Climatic Data Center Access.** Good News! The Department of Defense (DoD) has funded access to the National Climatic Data Center (NCDC) web site. This means that access to NCDC products is now free for military users (.mil accounts). While military customers would normally contact AFCCC or the Fleet Numerical Meteorology and Oceanography Detachment, Asheville (FNMOD, Asheville) for their climatology data needs, this is another source they can access for data for the United States (US). For information on how free access is granted, go to http://ols.ncdc.noaa.gov/phase3/freeaccess.html. That will take you directly to the NCDC site where you can sign up for access.

NCDC products primarily cover the US, but foreign products are also available. Products available on this free site include, but are not limited to, the following:

Monthly weather data summaries for a range of sites
Some historical weather maps
National Weather Service bulletins or observations (raw format)
Hourly Precipitation data for a range of sites
NEXRAD data in both map form and in raw data
Archived GOES satellite imagery
Co-Op weather station raw data

If you are a .mil user and find you can't access the NCDC site, go to http://www.ncdc.noaa.gov/servlets/whoami. It will show you how the host sees your system. If it doesn't show ".mil," you'll have to contact the NCDC system administrator to resolve the problem.

AFCCC or FNMOD, Asheville, should be your first stop, but you can now go directly to NCDC for data as well. Make time soon to browse the NCDC site and find out what it can offer you. Contact Ms. Hughes at DSN 673-9004/Com: 828-271-4291 or email alicia.hughes@afccc.af.mil.

**Narratives.** The following new narrative study is available on the AFCCC website: Thailand

In addition, briefing slides for the following locations are now available on the AFCCC website: Afghanistan, Ethiopia and Thailand.

**2004 Climatology Workshop.** If you would like a transcript (CD) of the AFCCC Climate Conference 2004, contact Capt. Hugh Freestrom at DSN 673-9018/Comm (828) 271-4218 or e-mail him at hugh.freestrom@afccc.af.mil

# Ops Impacts

**Base Realignment and Closing (BRAC):** In January 2004, the Department of Defense (DoD) announced that it had tasked commanders of military installations in the United States, territories and possessions to gather information about their bases as part of the 2005 round of BRAC. Every installation must participate. The DoD will use BRAC to reduce unnecessary infrastructure and to increase military capability and effectiveness. Phil Grone, principal assistant deputy Undersecretary of Defense for installations and the environment, estimated the next round of base closures in 2005 could save $6 billion a year, even if it cut only 12 percent of DoD's military infrastructure. Since January, AFCCC has provided certified climate data to dozens of Air Force and Army installations as part of the process. In the coming months, installations could be asked for additional climate data as the Secretary of Defense prepares his proposed BRAC list for the Defense Base Closure and Realignment Commission, which will be named by March 2005. Contact Major Guimond at DSN 673-9013/Comm: 828-271-1031 or email at philip.guimond@afccc.af.mil.

**Wind Stratified Conditional Climatology Tables (WSCC).** Gray Army Airfield at Ft. Lewis AIN, WA experiences frequent low ceilings and restricted visibilities. In maritime climates such as the Pacific Northwest and Western Europe, WSCCs have proven their worth as a valuable aid in forecasting low ceilings and visibility. AFCCC developed a Microsoft Access-based version of the WSCC and associated graphical user interface to provide a more accurate and easier-to-use tool to assist forecasters who support I Corps training operations. Contact Major Guimond at DSN 673-9013/Comm: 828-271-1031 or email at philip.guimond@afccc.af.mil.

**Space Shuttle Design Support.** In the aftermath of the Space Shuttle Columbia tragedy, NASA engineers used AFCCC data and analysis to help make decisions for their Shuttle Return-To-Flight effort. First, AFCCC provided temperature analysis that helped NASA diagnose a problem with the adhesive on reentry thermal tiles. Second, AFCCC provided data in support of the design of a new "bail-out" capability for the shuttles. Climate data for winds and waves over the Atlantic helped engineers balance the design specifications and weight of this system against mission payload and launch reliability. Greater weight would reduce payload and on-orbit maneuvering capability and less weight would reduce launch opportunities as recovery weather thresholds would be exceeded too often. Contact Mr. Zaunter at DSN 673-9005/Comm: 828-271-1037 or email jeffrey.zautner@afccc.af.mil.

## Library Corner

The library staff recently completed a three-year inventory of all books, Defense Technical Information Center (DTIC) paper and microfiche technical reports. The staff checked each item against the on-line library catalog to ensure each book or technical report was correctly listed by author, title, subjects, and call number. Several thousand titles went through this process and several hundred were corrected or added to the catalog. What does this mean to you? For this part of the Air Force Weather Technical Library's (AFWTL) collection you can search for specific titles, research topics, or individual authors for a completely accurate listing of all technical information in those sections. We are beginning work in other AFWTL areas to ensure the catalog is a complete and accurate accounting of the information for each area we have available for your use. Non-.mil users can access the AFWTL technical catalog at http://www.afccc.af.mil/. Click on "Air Force Weather Technical Library Card Catalog." Military (.mil) users can access the catalog at https://www.afccc.af.mil/cgi-bin/index_mil.pl?afccc_info/afwtl.html. Once there, click on the "On Line Card Catalog." Contact Mr. Gray at DSN 673-9019/Comm 828-271-4320, or email john.gray@afccc.af.mil.

## NAVY NOTES

Do you need a standard upper air chart? Want a 500-mb chart for Iraq? AFCCC offers point-specific upper-air data generated on the fly. We offer National Centers for Environmental Prediction (NCEP) reanalysis fields. Our upper-air climatology is easy to use and as close as your nearest internet/SIPRNET connection. It can be found under the "Products" link off our homepage and the AFCCC homepage. The 2.5 degree lat/long data are summarized by individual year-month (1949-2000) and period of record-month for 1958-1997. The data is available as charts between 1000 and 10 millibars. Users can pick pre-defined areas or create their own by entering a desired latitude and longitude for a month or range of months. Users can display various combinations of temperature, relative humidity, and wind direction/speed and height. Pressure levels at and above 300 mb contain only heights, wind direction/speed and jet stream isotachs. Charts from the Upper Air Climatology can be saved, printed or exported to Power Point. A looping feature is also available. Remember, if you have to deploy, know what to expect before you get there!

**For Operational Support Contact:**
Email: Navy.fnmod@noaa.gov
Comm Phone: (828) 252-7865
internet: http://navy.ncdc.noaa.gov/
siprnet: http://navyclimatology.navy.smil.mil

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niprnet: https://www.afccc.af.mil
siprnet: http//afccc.asheville.af.smil.mil